

CLEANING LABORATORY EVALUATION SUMMARY

SCL #: 2004
 DateRun: 05/12/2004
 Experimenters: Jason Marshall
 ClientType: Tool Manufacturer
 ProjectNumber: Project #1
 Substrates: Steel
 PartType: Coupon
 Contaminants: Paints
 Cleaning Methods: Vapor Degreasing
 Analytical Methods: Gravimetric

Purpose: To evaluate three products on varnish using vapor degreasing

Experimental Procedure: Three products were selected based on results from previous trials. All products were used heated to 160 F on a hot plate in 250 ml beakers. Nine preweighed steel coupons were coated with a varnish mix containing Cooper's Creek Chemicals, Cooper Black Tank Paint No 739 (64742-89-8, 8052-42-4, 108-88-3); Sherwin Williams Company, V74B2 Black Asphaltum coating (64742-89-8, 64742-88-7, 8052-42-4) using a hand held swab. The oil was then heated with a Master Appliance Heat gun at 300 F for 10 minutes. After cooling to room temperature, a second weighing was performed to determine the amount of soil that was added. Three coupons were cleaned in each solution for 15 minutes in the bench top vapor degreaser. After cooling, coupons were weighed a final time to determine the cleaning efficiency of each product.

Results: All three products removed over 97% of the varnish in 15 minutes. Two of the three removed over 99%. The table lists the amount of soil added, the amount remaining and the efficiency for each coupon.

| Product | Initial wt | Final wt | % Removal |
|----------------|------------|----------|-----------|
| Solvon PB | 0.0845 | 0.0008 | 99.05 |
| | 0.1243 | 0.0035 | 97.18 |
| | 0.0718 | 0.0032 | 95.54 |
| Ensolv A | 0.0701 | 0.0001 | 99.86 |
| | 0.0538 | -0.0001 | 100.19 |
| | 0.0694 | 0.0019 | 97.26 |
| Metalnox M6960 | 0.1238 | 0.0003 | 99.76 |
| | 0.0596 | -0.0001 | 100.17 |
| | 0.0844 | 0.0007 | 99.17 |

Summary:

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|-------------------------------|----------------------|---------------|--------------------|-------------------------------------|----------------------|
| Substrates: | Steel | | | | |
| Contaminants: | Paints | | | | |
| Company Name: | Product Name: | Conc.: | Efficiency: | Effective: | Observations: |
| Poly Systems USA Inc | Solvon Kreussler PB | 100 | 97.26 | <input checked="" type="checkbox"/> | |
| Enviro Tech International Inc | Ensolv A | 100 | 99.10 | <input checked="" type="checkbox"/> | |
| Kyzen Corporation | Metalnox M6960 | 100 | 99.70 | <input checked="" type="checkbox"/> | |

Conclusion: Remaining parts will be cleaned using the three products and vapor degreasing.